

ABSTRACT

A multi-dimensional spatial index includes at least two dimensions that define physical boundaries of the features represented by the indexed data. In addition, the multi-dimensional spatial index includes at least one additional dimension that represents another property. The other property is an orthogonal, non-spatial property. The other property may be a property of the features represented by the indexed data or the other property may be a property of the data. The other property represented by the additional dimension may include: granularity, distance, altitude, scale bounds within which each spatial entity is significant, or other property. The multi-dimensional spatial index is applicable to the storage, retrieval, visualization and traversal of spatial data sets.